

What is claimed is:

1. A process effluent abatement arrangement, comprising:

an enclosure which defines an interior void;

a first partition having a first orifice defined therein, said first partition

5 being positioned within said interior void such that (i) said first partition divides said interior void into a first chamber and a second chamber and (ii) said first orifice is in fluid communication with said first chamber and said second chamber;

sub 7
10 a gas connector which has (i) a passageway defined therethrough and (ii) a gas port in fluid communication with said passageway, said passageway (A) having an inlet and an outlet and (B) being in direct fluid communication with said first chamber of said enclosure;

a gas dispenser in direct fluid communication with said second chamber of said enclosure; and

15 an exit port in fluid communication with said interior void.

2. The arrangement of claim 1, further comprising:

a second partition having a second orifice defined therein,

wherein (i) said second partition is positioned within said second chamber,

20 (ii) said first orifice has a first central axis, (iii) said second orifice has a second central axis, and (iv) said second central axis of said second orifice is offset relative to said first central axis of said first orifice.

4. The arrangement of claim 3, wherein:

each of said first partition, said second partition, said third partition, said fourth partition, said fifth partition, and said sixth partition are spaced apart along a longitudinal axis of said enclosure so that said longitudinal axis passes through
5 a center point P_1 of said first partition, a center point P_2 of said second partition, a center point P_3 of said third partition, a center point P_4 of said fourth partition, a center point P_5 of said fifth partition, and a center point P_6 of said sixth partition, and

said second partition is positioned adjacent to said first partition such that

10 (i) said first sub-chamber is interposed said first partition and said second partition and (ii) said first orifice is in direct fluid communication with said first chamber and said first sub-chamber,

said third partition is positioned adjacent to said second partition such that

15 (i) said second sub-chamber is interposed said second partition and said third partition and (ii) said second orifice is in direct fluid communication with said first sub-chamber and said second sub-chamber,

said fourth partition is positioned adjacent to said third partition such that

20 (i) said third sub-chamber is interposed said third partition and said fourth partition and (ii) said third orifice is in direct fluid communication with said second sub-chamber and said third sub-chamber,

said fifth partition is positioned adjacent to said fourth partition such that

(i) said fourth sub-chamber is interposed said fourth partition and said fifth

partition and (ii) said fourth orifice is in direct fluid communication with said third sub-chamber and said fourth sub-chamber,

said sixth partition is positioned adjacent to said fifth partition such that (i) said fifth sub-chamber is interposed said fifth partition and said sixth partition and

5 (ii) said fifth orifice is in direct fluid communication with said fourth sub-chamber and said fifth sub-chamber, and

an end wall of said enclosure is positioned adjacent to said sixth partition such that (i) said sixth sub-chamber is interposed said end wall and said sixth partition and (ii) said sixth orifice is in direct fluid communication with said fifth sub-chamber and said sixth sub-chamber.

5. The arrangement of claim 4, wherein:

said third orifice has a third central axis and said third central axis of said third orifice is offset relative to said second central axis of said second orifice,

15 said fourth orifice has a fourth central axis and said fourth central axis of said fourth orifice is offset relative to said third central axis of said third orifice,

said fifth orifice has a fifth central axis and said fifth central axis of said fifth orifice is offset relative to said fourth central axis of said fourth orifice, and

20 said sixth orifice has a sixth central axis and said sixth central axis of said sixth orifice is offset relative to said fifth central axis of said fifth orifice.

6. The arrangement of claim 5, wherein:

said longitudinal axis divides said enclosure into a first half and a second half,

said first central axis of said first orifice is aligned with said longitudinal axis,

said second orifice of said second partition, said fourth orifice of said fourth partition, and said sixth orifice of said sixth partition are located within said first half of said enclosure, and

said third orifice of said third partition and said fifth orifice of said fifth partition are located within said second half of said enclosure.

7. The arrangement of claim 1, further comprising:

an etch apparatus which generates an etch gas product, said etch apparatus being in fluid communication with said gas connector such that said etch gas product generated by said etch apparatus is advanced into said interior void of said enclosure.

8. The apparatus of claim 1, further comprising:

a gas source containing a gas, said gas source being in fluid communication with said gas port of said gas connector such that said gas contained by said gas source is advanced into said passageway of said gas connector.

11. An arrangement for abating effluent, comprising:

an enclosure which defines an interior void;

a gas connector which has (i) a passageway defined therethrough and (ii)

a gas port in fluid communication with said passageway, said passageway (A)

5 having an inlet and an outlet and (B) being in fluid communication with said interior void of said enclosure;

a gas dispenser in fluid communication with said interior void of said enclosure;

an exit port in fluid communication with said interior void of said enclosure;

10 and

an etch apparatus which generates an etch gas product, said etch apparatus being in fluid communication with said gas connector such that said etch gas product generated by said etch apparatus is advanced into said interior void of said enclosure.

12. The arrangement of claim 11, further comprising:

a gas source containing a gas, said gas source being in fluid communication with said gas port of said gas connector such that said gas contained by said gas source is advanced into said passageway of said gas connector; and

a heating element which is in thermal communication with said gas provided by said gas source so that said gas is heated prior to being advanced into said passageway of said gas connector.

13. The arrangement of claim 12, further comprising:

a humidified gas source for providing a humidified gas, said humidified gas source being in fluid communication with said gas dispenser such that said humidified gas is advanced into said gas dispenser and into said interior void of said enclosure.

14. The arrangement of claim 13, further comprising:

a first partition having a first orifice defined therein, said first partition being positioned within said interior void of said enclosure such that (i) said first partition divides said interior void into a first chamber and a second chamber and (ii) said first orifice is in fluid communication with said first chamber and said second chamber; and

a second partition having a second orifice defined therein, wherein (i) said gas connector is in fluid communication with said interior void such that said etch gas product generated by said etch apparatus is advanced directly into said first chamber of said interior void, (ii) said second partition is positioned within said second chamber of said interior void, (iii) said gas dispenser is in fluid communication with said interior void such that said humidified gas is advanced directly into said second chamber of said interior void, (iv) said first orifice has a first central axis, (v) said second orifice has a second central axis, and (vi) said second central axis of said second orifice is offset relative to said first central axis of said first orifice.

15. A method of abating an etch gas product generated from an etch apparatus, comprising:

(a) placing said etch apparatus in fluid communication with an apparatus which includes (i) an enclosure which defines an interior void, (ii) a first partition having a first orifice defined therein, said first partition being positioned within said interior void of said enclosure such that (A) said first partition divides said interior void into a first chamber and a second chamber and (B) said first orifice is in fluid communication with said first chamber and said second chamber, (iii) a gas connector which has (A) a passageway defined therethrough, said passageway having an inlet and an outlet and being in direct fluid communication with said first chamber of said interior void and (B) a gas port in fluid communication with said passageway, (iv) a gas dispenser in direct fluid communication with said second chamber of said interior void, (v) an exit port in fluid communication with said interior void of said enclosure, (vi) a gas source containing a gas, said gas source being in fluid communication with said gas port of said gas connector such that said gas contained by said gas source is advanced into said passageway of said gas connector, and (vii) a humidified gas source for providing a humidified gas, said humidified gas source being in fluid communication with said gas dispenser such that said humidified gas is advanced into said gas dispenser and directly into said second chamber of said interior void;

(b) advancing said etch gas product into said passageway of said gas connector;

(c) advancing said gas from said gas source into said passageway of said gas connector at the same time said etch gas product is being advanced into said passageway; and

(d) advancing said humidified gas from said humidified gas source into
5 said second chamber of said interior void.

16. The method of claim 15, further comprising:

(e) placing an electrical heating element in thermal communication with said gas provided by said gas source; and

10 (f) heating said gas provided by said gas source.

17. The method of claim 15, wherein:

said apparatus further includes a second partition having a second orifice defined therein,

15 said second partition is positioned within said second chamber,

said first orifice has a first central axis,

said second orifice has a second central axis, and

said second central axis of said second orifice is offset relative to said first central axis of said first orifice.

18. The method of claim 15, further comprising:

(g) removing said apparatus from said etch apparatus so that said apparatus is no longer in fluid communication with said etch apparatus; and

(h) placing said etch apparatus in fluid communication with a replacement
5 apparatus which includes (i) an enclosure which defines an interior void, (ii) a first partition having a first orifice defined therein, said first partition being positioned within said interior void of said enclosure such that (A) said first partition divides said interior void into a first chamber and a second chamber and (B) said first orifice is in fluid communication with said first chamber and said
10 second chamber, (iii) a gas connector which has (A) a passageway defined therethrough, said passageway having an inlet and an outlet and being in direct fluid communication with said first chamber of said interior void and (B) a gas port in fluid communication with said passageway, (iv) a gas dispenser in direct fluid communication with said second chamber of said interior void, (v) an exit
15 port in fluid communication with said interior void of said enclosure, (vi) a gas source containing a gas, said gas source being in fluid communication with said gas port of said gas connector such that said gas contained by said gas source is advanced into said passageway of said gas connector, and (vii) a humidified gas source for providing a humidified gas, said humidified gas source being in
20 fluid communication with said gas dispenser such that said humidified gas is advanced into said gas dispenser and directly into said second chamber of said interior void.

19. The method of claim 15, wherein said etch gas product includes a first gaseous component, further comprising:

(i) precipitating said first gaseous component in said first chamber of said interior void.

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20. The method of claim 19, wherein said etch gas product also includes a second gaseous component, further comprising:

(j) advancing said second gaseous component through said first orifice of said first partition; and

(k) precipitating said second gaseous component in said second chamber of said interior void.

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